STATE of NEW HAMPSHIRE
DEPARTMENT of ADMINISTRATIVE SERVICES
DIVISION of PUBLIC WORKS - DESIGN & CONSTRUCTION
POB 483, 7 Hazen Drive – Room 250
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Phone 603-271-3516, Fax 603-271-3515

CHARLES M. ARLINGHAUS
Commissioner

ADDENDUM NUMBER 01

FOR

ARPA- CONCORD CIRCUIT COURTHOUSE HVAC UPGRADES

FEDERAL AID PROJECT

32 CLINTON STREET, CONCORD

CONCORD, NEW HAMPSHIRE

DEPARTMENT OF ADMINISTRATIVE SERVICES

DIVISION OF PUBLIC WORKS PROJECT NUMBER 81326R

CONTRACT B

APRIL 25, 2024

DOCUMENT 00911

ADDENDUM NUMBER 01

TO: ALL CONTRACT BIDDERS OF RECORD

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated April 11, 2024, with amendments and additions noted below.
Acknowledge receipt of this Addendum in the space provided in the Proposal Form. Failure to do so may disqualify the Bidder.

This Addendum consists of 5 pages, 48 pages of attachments and the following Drawings:

No.	Drawing Title	Issue Date
C20-1	SITE LAYOUT PLAN	4/26/24
E20-0	BASEMENT FLOOR PLAN POWER	4/26/24
E70-1	ELECTRICAL DETAILS	4/26/24
E80-1	ELECTRICAL SITE PLAN	4/26/24

CHANGES TO THE SPECIFICATIONS

DOCUMENT 00015 - TABLE OF CONTENTS CONCORD CIRCUIT COURT

1. Remove and replace with table of contents, revised 4/26/24.

DOCUMENT 232113 Hydronic Piping for Concord Circuit Court

2. Add spec section.

DOCUMENT 232118 Hydronic Specialties for Concord Circuit Court

3. Add spec section.

DOCUMENT 00015 – TABLE OF CONTENTS SUPREME COURT TRANSFORMERS

4. Remove and replace with table of contents, revised 4/26/24.

DOCUMENT 013300-Submittal Procedures and CAD Agreement for Transformers

5. Add spec section.

DOCUMENT 017329-Cutting and Patching for Transformers

6. Add spec section.

DOCUMENT 078413- Penetration Firestopping for Transformers

7. Add spec section.

CHANGES TO THE DRAWINGS

DRAWING C20-1 - SITE LAYOUT PLAN

8. Delete this Drawing and replace with Drawing C20-1 issued with this Addendum.

DRAWING E20-0 – BASEMENT FLOOR PLAN POWER

9. Delete this Drawing and replace with Drawing E20-0 issued with this Addendum.

DRAWING E70-1 - ELECTRICAL DETAILS

10. Delete this Drawing and replace with Drawing E70-1 issued with this Addendum.

DRAWING E80-1 - ELECTRICAL SITE PLAN

11. Delete this Drawing and replace with Drawing E80-1 issued with this Addendum.

QUESTIONS

12. Q: E20-0 Supreme Court: Is the fire pump location correct?
    A: No, the fire pump has been moved. See new location in E20-0.

13. Q: M05-1 Concord Circuit Court note D06 Air compressor. Will the contractor remove air compressor?
    A: No. The Department of Corrections will remove the air compressor and air dryer.

14. Q: I'm reaching out in reference to the ARPA Concord Circuit Courthouse project and requesting approval to be added to the list of acceptable suppliers and installers specifically for the Instrumentation and Control installation. At Denron Hall we engineer, install, and service the Johnson Controls Facility Explorer (FX) line of products. Facility Explorer is a non-proprietary solution that is backed by Johnson Controls & Niagara and would be compatible with the existing Delta system that is referenced in the specifications, additionally we take no exceptions to the specifications as written. One of the main benefits of a non-proprietary system is that it can be integrated with all major brands and serviced by your choice of controls contractor. We are currently the selected building automation contractor for the ARPA State House Annex and ARPA Londergan Hall projects.
    A: No, substitution for controls will be accepted.

15. Q: Sununu Youth Services: Hydrant South outside Residential BLDG – Does the state have a accurate underground plan of the existing water main to know if there is sufficient space to do an insertion valve between the existing main and the new hydrant to keep the hydrant on the existing lawn?
    A: Yes, there is enough room to add an insertion valve.

16. Q: Sununu Youth Services: Main entrance circle – What does the state mean by reposition the existing valve sleeve?
    A: The valve area needs to be excavated and the sleeve moved to have access to the valve.

17. Q: Concord Circuit Court: In the Court house, there are thermostats alone and thermostats with guards, what is required for new?
    A: No, guards will not be required.

18. Q: Concord Circuit Court: Is there a phasing schedule that needs to be followed?
    A: Please refer to summary page 93, 01100-3-1.6 work sequence B.

19. Q: Concord Circuit Court: Can more than one system be down at a time?
    A: Please refer to summary page 93, 01100-3-1.6 work sequence B.

20. Q: Concord Circuit Court: How long are we allowed to have a system offline?
    A: Please refer to summary page 93, 01100-3-1.6 work sequence B.

21. Q: Concord Circuit Court: Is the existing roof under warranty?
    A: Yes. Replace roof warranty note on A15-1 indicating a Firestone roof with a Carlisle roof.

22. Q: Supreme Court: The plans show just patching sections of Pavement, is this acceptable for new trenches?
    A: Yes, follow details.

23. Q: Supreme Court: When does the power cross over need to be performed?
    A: Work will be performed over weekends.

24. Q: What is the State's estimate for the entire project?
    A: Between $1,000,000 and $5,000,000.

25. Q: Does the new control system need to match the existing Bureau of Court Facilities?
    A: Yes, control system shall match existing courthouse system architecture, servers and user interface.

26. Q: Supreme Court: Can the building be without power during normal operation hours?
    A: No, power must be maintained with a generator or normal power to the building during normal operation hours.

27. Q: Do the Davis-Bacon Act requirements (prevailing wage rates) apply?
    A: No Davis-Bacon rates.

28. Q: Sequences for AH-1, AH-2, & AH-3 on page 230900-27 require both supply and return fan air flow on the end-user GUI. Mechanical drawings do not show air flow measurement stations for these units. Should Ebtron airflow measurement stations be supplied for these units?
    A: Yes, as specified in 230900-2.20

29. Q: Spec section 230900.3.2.D.4 on page 230900-19 states that all wires, whether concealed or exposed must be in conduit. Can plenum rated cable be run concealed above ceilings and in walls without conduit?
    A: Conduits for controls are only required in equipment rooms.

30. Q: Is there a specification for HVAC pipe, valves and fittings? Can pro-press fittings and valves be used?
    A: See attached specification.

31. Q: First work to be done: All Pneumatics control replacements. Baseboard and VAVs - May 15th to October 15th. Is this 2025?

A: May 15 to October 15, 2024, or May 15 to October 15, 2025.

32. Q: Equipment on roof: October 15 to December 15 or March 15 to May 1. Is this 2025/2026 and there will be no construction on the roof December 16 to March 14 or no construction at all?
    A: October 15 to December 15, 2024, or March 15 to May 1, 2025.

33. Q: Sununu Youth Services: April 15 to October 15. Is this 2025? Previously noted: July 2024 to November 1, 2024.
    A: April 15 to October 15, 2024, or April 15 to October 15, 2025.

34. Q: What is the sequence of removing the pneumatic tubing?
    A: Contractor to ensure system is controlled at all times.

35. Q: Do we need to type the updated schedules on the electrical panels?
    A: Yes

36. Q: M0-2: Is there supposed to be M01 for VAV 2.2.4?
    A: Yes

Michelle L. Juliano

Michelle Juliano, PE, Deputy Director Division of Public Works– Design & Construction

END OF DOCUMENT

STATE OF NEW HAMPSHIRE
ARPA CONCORD CIRCUIT
COURTHOUSE, RTU, CONTROLS, & BMS REPLACEMENT

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DIVISION 27 – DIVISION 33 – NOT USED

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SECTION 232113 – HYDRONIC PIPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Pipe and Pipe Fittings For:
   1. Heating water piping system.
   2. Equipment drains and overflows.

1.2 RELATED SECTIONS

A. Division 23 Section “Sleeves and Escutcheons for HVAC Piping.”

B. Division 23 Section “Hydronic Specialties.”

1.3 REFERENCES

A. ASME - Boiler and Pressure Vessel Codes, SEC 9 - Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.

B. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

C. ASME B31.9 - Building Services Piping.

D. ASTM B32 - Solder Metal.

E. ASTM B88 - Seamless Copper Water Tube.

F. ASTM F708 - Design and Installation of Rigid Pipe Hangers.

G. MSS SP58 - Pipe Hangers and Supports - Materials, Design and Manufacture.

H. MSS SP69 - Pipe Hangers and Supports - Selection and Application.

I. MSS SP89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

1.4 SUBMITTALS

A. Submit under provisions of Division 01 Section “Submittal Procedures.”

B. Product Data: Include data on pipe materials, pipe fittings, valves, and accessories. Provide Manufacturers catalogue information. Indicate valve data and ratings.

C. Manufacturer's Installation Instructions: Indicate hanging and support methods, joining procedures.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Division 01 Section “Closeout Procedures.”

B. Record actual locations of valves.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of Division 01 Section “Operation and Maintenance Data.”

B. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum 3 years’ experience.

B. Installer: Company specializing in performing the work of this Section with minimum 3 years’ experience.

C. Pressed Pipe Fittings: Submit documentation of fitting-manufacturer training of installers or their on-site supervisors, with names of individuals.

1.8 REGULATORY REQUIREMENTS

A. Conform to ASME B31.9 code for installation of piping system.

B. Provide certificate of compliance from authority having jurisdiction indicating approval of welders.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Division 01 Section “Product Requirements.”

B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 - PRODUCTS

2.1 HEATING WATER PIPING, ABOVE GROUND

A. Steel Pipe: ASTM A53, Schedule 40, black.
   1. Fittings: ASTM B16.3, malleable iron or ASTM A234, forged steel welding type fittings.
   2. Joints: Schedule 40 threaded for pipe sizes 2 inch (50.8 mm) and smaller.

B. Copper Tubing: ASTM B88, Type L hard drawn.
   1. Allowed only for pipe sizes 2 inch (50.8 mm) and smaller.
   2. Fittings: ASME B16.18, cast brass, or ASME B16.22, solder wrought copper.
   3. Joints: Solder or braze, or press fittings.

2.2 SOLDER MATERIALS:

A. Manufacturers:
1. Harris (Product: Stay-Brite).
2. Lucas-Milhaupt (Product: Clean ‘n Brite).
3. Wolverine (Product: Silvabrite).
4. No substitutions.

B. Nominal Composition: Alloy of silver and tin (3-6 percent Ag, remainder Sn). Antimony-free.

C. Specification Compliance:
1. NSF 51
2. ASTM B32-89, Alloy Grade Sn96
3. Federal Spec. QQ-S-571E, Class Sn 96 with exception to QPL paragraph 3.1
4. J-STD-006, Sn96Ag04A

D. Flux:
1. Harris (Product: Stay Clean Paste Flux, Stay Clean Liquid Flux (used with 4 inch or larger copper tubing also stainless steels), or Bridgit Water Soluble Paste Flux).
2. Canfield (Product: Aqua-Brite or AB Cream Flux). Glycerin-based, water soluble.

2.3 UNIONS, FLANGES, AND COUPLINGS

A. Unions for Pipe 2 inch (50 mm) and Under:
1. Ferrous Piping: 150 psig (1034 kPa) malleable iron, threaded.
2. Copper Pipe: Bronze, soldered joints.

B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.4 PRESS FITTINGS

A. Approved Manufacturers:
1. Viega LLC, Wichita, KS - ProPress System with Smart Connect feature.
2. Grinnell, division of Tyco International – G-Press System with leak-before-press feature.
3. No substitutions.

B. Fitting and Valve Products:
1. Wrought copper and cast copper alloy (brass or bronze) fittings and valves for copper piping.
2. Adapter fittings for transition connections to threaded fittings and dissimilar materials.
3. Available sizes: 1/2 inch to 4 inch (12.7 mm to 101 mm).

C. Features:
1. Seals: O-ring type, factory installed in a fitting bead. Seals in larger sizes shall include a separator ring and a stainless steel grip ring.
2. Seal Materials: EPDM (color shiny black) in copper for hydronic and drain systems.
3. Colored Identification Dots:
a. Copper Fittings:
1) Green for EPDM seal.

4. Smart Connect feature provides a leakage path to allow water and air to leak past any unpressed connection, for quick identification during pressure testing.

D. Temperature/Pressure ratings (with appropriate type seals):
1. Hydronic Systems: 0 to 250 degrees F (-17 to 121 degrees C) up to 200 psig (1723 kPa), at up to 100 percent maximum concentration of ethylene or propylene glycol.

E. Accessories:
1. Pressing: Use pressing tools, actuator jaws, and pressing rings, Rigid brand manufactured by Ridge Tool Company, as recommended by the fitting manufacturer for each type of fitting.
2. Lubricants: Do not use. Not recommended by fitting manufacturer.
3. Cutting Tools: For copper, use wheeled cutting tool, or cutting tool approved by the fitting manufacturer. Use deburring tool or reamer after cutting.

2.5 PIPE HANGERS AND SUPPORTS

A. Conform to ASME B31.9, ASTM F708, MSS SP58, MSS SP69, and MSS SP89 as applicable.

B. Hangers for Pipe Sizes 1/2 to 1-1/2 inch (13 to 38 mm): Malleable iron, adjustable swivel, split ring.

C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

D. Wall Support for Pipe Sizes to 3 inch (76 mm): Cast iron hook.

E. Vertical Support: Steel riser clamp.

F. Floor Support for Hot Pipe Sizes to 4 inch (100 mm): Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

G. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

H. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

3.2 INSTALLATION

A. Install in accordance with Manufacturer's instructions.

B. Install components furnished under other Section and Divisions of the Specifications. Such items may include but are not limited to: Sensors furnished under Division 23 Section "Instrumentation and Control for Mechanical Systems."

C. Install heating water piping to ASME B31.9.

D. Pipe used shall be new material, and threads on piping shall be full length and clean cut with inside edges reamed smooth to full inside bore.

E. Minimum pipe size allowed for hydronic piping shall be 3/4 inch (19 mm). Piping less that 3/4 inch (19 mm) shall not be allowed for these piping systems.

F. Route piping in orderly manner, parallel to building structure, and maintain gradient.

G. Install piping to conserve building space, and not interfere with use of space.

H. Group piping whenever practical at common elevations.

I. Erect piping to provide for the easy passage and noiseless circulation of water under working conditions.

J. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level. Slope water piping 1 inch in 40 feet (1:480) and arrange to drain at low points. Slope piping up in direction of water flow.

K. On closed systems, equip low points with 3/4 inch (19 mm) drain valves and hose nipples. Provide, at high points of mains, collecting chambers and high capacity float operated automatic air vents, with ball valves on their inlets to valve off after initial system startup. Provide, at high points of branches, manual air vents with air chambers.

L. Use main sized saddle type branch connections for directly connecting branch lines to mains in steel piping if main is at least 1 pipe size larger than the branch for up to 6 inch (152 mm) mains and if main is at least 2 pipe sizes larger than branch for 8 inch (203 mm) and larger mains. Do not project branch pipes inside the main pipe.

M. Caulking of threads will not be allowed on any piping.

N. Pipe joint compound shall be put on male threads only.

O. Where more than one piping system material is specified, ensure system components are compatible and joined to ensure the integrity of the system is not jeopardized. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

P. Dissimilar Metals: Use non-conducting dielectric connections whenever jointing dissimilar metals. Cast red-brass (not yellow brass) or bronze-bodied fittings such as valves and couplings may be used when joining steel to copper, steel to stainless steel, or copper to stainless steel.

Steel and stainless steel may connect directly to iron, but copper may not connect directly to iron.

Q. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Refer to Division 23 Section “HVAC Piping Insulation.”

R. In the erection of mains, use special care in the support, working into place without springing or forcing, and proper allowance made for expansion.

S. Pipes shall be anchored, guided, and otherwise supported, where necessary, to prevent vibration or to control expansion.

T. Make such offsets as are shown and required to place the pipes and risers in proper position to avoid other work.

U. Take branch lines off bottom of mains or at 45 degree bottom angle, as space permits.

V. Use unions, flanges, and couplings downstream of valves and at equipment or apparatus connections. Do not use direct welded or threaded connections to valves, equipment or other apparatus.

W. Install a sufficient number of unions or flanged fittings to facilitate making possible future alterations or repairs.

X. Install concealed pipes close to building structure to keep furring to a minimum.

Y. Provide access where valves and fittings are not exposed.

3.3 TESTING

A. No joint or section of piping shall be left untested.

END OF SECTION 232113

SECTION 232118 – HYDRONIC SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Valves:
   1. Ball valves.
   2. Check valves.

B. Air vents.

C. Strainers.

D. Combination fittings.

E. Flow indicators, controls, meters.

1.2 RELATED SECTIONS

A. Division 23 Section “Meters and Gauges for HVAC Piping”: Test Ports.

B. Division 23 Section “Hydronic Piping.”

1.3 REFERENCES

A. ASME - Boilers and Pressure Vessel Codes, SEC 8-D-Rules for Construction of Pressure Vessels.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

A. Submit under provisions of Division 01 Section “Submittal Procedures.”

B. Product Data: Provide product data for manufactured products and assemblies required for this project. Include component sizes, rough-in requirements, service sizes, and finishes. Include product description, model and dimensions.

C. Submit inspection certificates for pressure vessels from authority having jurisdiction.

D. Manufacturer's Installation Instructions: Indicate hanging and support methods, joining procedures.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Division 01 Section “Closeout Procedures.”

1.6 OPERATION AND MAINTENANCE DATA

A. Submit under provisions of Division 01 Section “Operation and Maintenance Data.”

B. Maintenance Data: Include installation instructions, assembly views, lubrication instructions, and replacement parts list.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this Section with minimum 3 years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Division 01 Section “Product Requirements.”

B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

E. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.9 MAINTENANCE SERVICE

A. Furnish service and maintenance of glycol system for 1 year from date of substantial completion.

B. Monthly visit to make glycol fluid concentration analysis on site with refractive index measurement instrument. Detail findings with maintenance personnel in writing of corrective actions needed including analysis and amounts of glycol or water added.

PART 2 - PRODUCTS

2.1 VALVES

A. Manufacturers:
1. Nibco.
2. Anvil International - Gruvlok product line.
3. Apollo.
4. Armstrong.
5. Watts.
6. Wheatley.
7. No substitutions.

B. Ball Valves:
   1. Up To and Including 2 inch (50 mm):
      a. Bronze two piece body, chrome plated brass ball, teflon seats and stuffing box ring, lever handle, solder or threaded ends.
      b. 150 lb S.W.P., 600 lb W.O.G.

C. Swing Check Valves:
   1. Up To and Including 2 inch (50 mm): Bronze body, bronze trim, bronze rotating swing disc, with composition disc, solder or threaded ends.

2.2 STRAINERS

A. Manufacturers:
   1. Sarco.
   2. Armstrong.
   3. Barnes and Jones.
   4. Bell & Gossett.
   5. Flo-Fab.
   6. Keckley Co.
   7. Muesco.
   8. Wheatley.

B. Size 2 inch (50 mm) and Under: Screwed brass or iron body for 175 psig (1200 kPa) working pressure, Y pattern with 1/32 inch (0.8 mm) stainless steel perforated screen.

2.3 BALANCING VALVES AND COMBINATION BALANCING/SHUT-OFF VALVES.

A. Manufacturers:
   1. Bell & Gossett.
   2. Armstrong.
   3. Flow Design, Inc.
   4. Griswold Controls.
   5. Nexus Valve.
   6. Taco.
   7. Tour and Andersson.
   8. Watts.
   9. Wheatley.

B. Valves shall conform to one of the following:
   1. Fixed-Orifice Manual Balancing Valve: Calibrated, ball type balance valve with precision machined orifice, readout valves equipped with integral check valves and gasketed caps, calibrated nameplate and indicating pointer with memory stop. Readout valves measure the pressure differential across the fixed orifice plate or venturi. Valve shall be designed for positive shut-off.

C. Size balancing valves to allow a reading of 2 to 5 ft wg (6 to 15 kPa) pressure drop at design flow rates. Submittals shall include a chart of valve selections, indicating room number, terminal heating device tag, flow rate, pressure drop, and differential pressure reading.

D. Insulation: Valves may be furnished with prefabricated thermal insulation. Flame spread reading shall be 25 or less per ASTM E84. R-value shall be 4 hr-sq.ft- F/Btu (0.704 K·m²/W)

or greater. Install in accordance with Division 23 Section “HVAC Piping Insulation.”

PART 3 - EXECUTION

3.1 INSTALLATION

A. Valve Type Selection:
   1. Use ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
   2. Use ball valves for throttling, bypass, or manual flow control services.
   3. Use ball valves for general shut-off service in heating and cooling system piping 2 inch (50.8 mm) and smaller and at heating terminal units 2 inch (50.8 mm) and smaller, including fin-tube radiation, unit heaters, convectors and fan coil units.
   4. Use Combination Balancing, Flow Measuring and Tight Shut-off Valves at terminal heating and cooling units, zone branches and as indicated.
   5. Use Bronze Ball Valves for drain valves with hose connections. Provide valve of size indicated; if size isn’t indicated, provide at least 3/4 inch (19 mm) valve size. Provide outlet fitting for standard “garden hose” with 3/4 inch (19 mm) hose threads. Provide brass cap with retainer chain. Compression-type “boiler drain valves” are not allowed.

B. With the exception of valves which must be properly sized to ensure design flow rates (such as balancing valves), valves shall be line sized.

C. For isolation valves, control valves and balancing valves located above suspended ceilings and in areas that are not visible to building occupants (for example, mechanical rooms), provide yellow colored surveyors tape. Permanently attach tape to valve handles and run tape down to 10 inches (254 mm) above ceiling or 12 inches (305 mm) below valve handle where ceilings do not exist (for example, mechanical rooms).

D. Standard details for heating and cooling coils are based on single coil arrangements. For heating and cooling coils that are supplied in a split coil arrangement, with 2 or more individual coils, provide additional piping and balancing valves at each coil to ensure that flow through each coil is proportional to the percentage of total coil face area that the coil occupies.

E. Install valves with stems upright or horizontal, not inverted.

F. Install specialties in accordance with manufacturer's instructions.

G. Where large air quantities can accumulate, provide enlarged air collection standpipes.

H. Provide manual air vents at system high points and as indicated.

I. For automatic air vents in ceiling spaces or other concealed locations, provide vent tubing to nearest drain, and shutoff ball valve upstream of vent to shut the vent off after initial system startup.

J. Provide valved drain and hose connection on strainer blow down connection.

K. Provide balancing valves on water outlet from terminal heating and cooling units such as radiation, unit heaters, vav boxes, and fan coil units.

L. Ensure that balancing valves are installed with minimum upstream length of straight pipe as recommended by the manufacturer.

M. Ensure that balancing valves are installed with the readout valves fully accessible, including space required for insertion of metering probes.

N. Standard details for heating and cooling coils are based on single coil arrangements. For heating and cooling coils that are supplied in a split coil arrangement, with two or more individual coils, provide additional piping and balancing valves at each coil to ensure that flow through each coil is proportional to the percentage of total coil face area that the coil occupies.

O. Install combination valve assemblies to account for small offsets between coils connections and hard pipe connections. Assemblies shall not be installed in a manner that forms bends of more than 90 degrees total.

END OF SECTION 232118

STATE OF NEW HAMPSHIRE
ARPA CONCORD CIRCUIT
COURTHOUSE, RTU, CONTROLS, & BMS REPLACEMENT
Transformer

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AGREEMENT BETWEEN HARRIMAN (ARCHITECT & ENGINEER OF RECORD) AND OWNER OR CONTRACTOR FOR RELEASE OF ELECTRONIC DOCUMENTS

RECIPIENT:

Name: _____ Phone Number: _____

Address: _____

Email Address: _____ Date: _____

Project Name: _____ HA Project No.: _____

- This request to for Harriman to provide the following Electronic Documents (AutoCad file or Revit model), dated _____, for the project use by the Recipient:

(List requested documents clearly)_____

_____

- Electronic Documents will be provided in the current software version used by Harriman at the time of the request. Alternate versions may be available at Harriman's discretion. Current software versions are AutoCAD 2023 and Autodesk Revit 2023.

  Alternate Version Requested: _____

- Transfer method shall be by Electronic File Transfer to the email address provided above.

- A fee may be assessed for processing and distributing requested document. Recipient will be notified on any fees prior after receipt of this request document. Fees are payable prior to receiving requested documents.

TERMS AND CONDITIONS:

1. For the purpose of this document, both 2d CAD files and 3d Revit models shall be collectively defined as "Electronic Documents".

2. It is understood and agreed that all drawings, specifications, or other documents of any kind prepared by Harriman or its subconsultants, whether in hard copy or in electronic format including Electronic Documents (collectively " Harriman's Documents"), are instruments of their services prepared solely for use in connection with the single project for which they were prepared and that Harriman and its subconsultants retain all common law, statutory and other reserved rights, including the copyright. This agreement is not intended in any way to alter the respective interests of the parties in the Instruments of Service as set forth in the Owner/Architect Agreement, notwithstanding Harriman's agreement to release the Electronic Documents to Recipient.

3. The Electronic Documents are provided as a convenience to the Recipient for informational purposes only in connection with the Recipient's performance of its responsibilities and obligations relating to the Project. The Electronic Documents do not replace or supplement the paper copies of the Drawings and Specifications, which are, and remain, the Contract Documents for the Project. In all

instances, it is the responsibility of the Recipient to ensure that the Electronic Documents are consistent with the Contract Documents.

4. The parties agree that the Electronic Documents are not, nor shall they be construed to be, a product. It is expressly agreed by the Recipient that there are no warranties of any kind in such Electronic Documents or in the media in which they are contained, either expressed or implied.

5. Harriman makes no representation as to the compatibility of the Electronic Documents with any hardware or software.

6. Since the information set forth on the Electronic Documents can be modified unintentionally or otherwise, Harriman reserves the right to remove all indicia of its ownership and/or involvement from each electronic display.

7. If any differences exist between printed Instruments of Service and Electronic Documents, the information contained in the printed documents shall be presumed to be correct and take precedence over the Electronic Documents.

8. Recipient agrees not to add to, modify or alter in any way, or to allow others to add to, modify or alter in any way, the Electronic Documents or any printed copies thereof.

9. Revit models are Design Models and will only contain elements and content that Harriman deems necessary and appropriate to share. Not all objects in the models are 3d objects and no specific Level of Detail is implied or expected. Consequently, the models cannot be used to extract precise material or object quantities. The Recipient agrees that no proprietary Revit families or Revit content shall be removed from the model and/or used for any other purpose but to support this specific project.

10. The Electronic Documents are supplied in a translatable format. Any conversion of the format is solely the responsibility of the Recipient. Recipient understands and agrees that the conversion of hard copies of Instruments of Service into electronic format or the conversion of Electronic Documents from formats used by Harriman to some other format may introduce errors or other inaccuracies. Recipient agrees to accept all responsibility for any errors or inaccuracies and to release Harriman, and its subconsultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.

11. Where the Recipient has received specific permission to use the Electronic Documents in connection with the Recipient's obligation to prepare certain documents for Project, Recipient shall, in addition to the other obligations set forth therein, be obligated to remove Harriman's or its Consultant's title block from the copy of the Electronic Documents used by Recipient. It is understood and agreed that, without the separate express written permission of Harriman to do so, the Electronic Documents are not to be used by any contractor or any of its subcontractors of any tier of material supplier or vendor as a shop drawing or any other type of submittal or as the basis for preparing such shop drawing or submittal. The sole exception to this prohibition shall be that the Recipient may use the Electronic Documents as a clearly distinguishable separate background upon which to prepare its shop drawings or other submittal.

12. Recipient further agrees that Harriman's Documents were prepared for use in connection with this project only and that the Electronic Documents are supplied to Recipient for the limited use stated above only. Recipient agrees not to use, or to allow others to use, the Electronic Documents, in whole or in part, for any purpose other than as stated above.

13. Harriman believes that no licensing or copyright fees are due to others on account of the transfer of the Electronic Documents, but to the extent any are, the Contractor will pay the appropriate fees and hold Harriman harmless from such claims.

14. Any purchase order number provided by the Contractor is for Contractor's accounting purposes only. Purchase order terms and conditions are void and are not a part of this agreement.

15. Harriman has prepared these Electronic Documents for the sole purpose of plotting and printing a hard copy of the design documents. Harriman believes only the hard copy print to be the accurate representation of all drawing information. Hard copy written dimensions override electronic measured dimensions. User must verify computer data against hard copy prints.

16. Electronic Documents are an inherently unstable medium subject to "bugs," deterioration, modifications, and viruses. Electronic Documents are subject to inadvertent changes in the process of moving from one computer to another or by compressing/decompressing the data; or by moving from one software revision to another; or any kind of manipulation of the data will lead to defects.

17. This agreement shall be governed by the laws of the principal place of business of Harriman. Only printed copies of the Instrument of Service shall be signed and sealed.

18. Recipient agrees to waive any and all claims and liability against Harriman and its subconsultants resulting in any way from any failure by Recipient to comply with the requirements of this Agreement for the Delivery of Documents in Electronic Format.

19. The Recipient agrees that no third-party beneficiary status or any other right of action is created in favor of any contractor, subcontractor, materialmen or other third party against Harriman by virtue of this Agreement or in connection with its delivery of Electronic Documents, and no third-party beneficiary status is intended.

20. Recipient further agrees to indemnify and save harmless Harriman and its subconsultants and each of their partners, officers, shareholders, and directors and employees from any and all claims, judgments, suits, liabilities, damages, costs or expenses (including reasonable defense and attorney's fees including claims asserted in breach of contract, breach of warranty, negligence, or any other tort) arising as a result of either: 1) Recipient's failure to comply with any of the requirements of Agreement for the Delivery of Documents in Electronic Format; or 2) a defect, error or omission in the Electronic Documents or the information contained therein, which defect, error or omission was not contained in the Contract Documents as defined in Paragraph 2 or where the use of such Contract Documents would have prevented the claim, judgment, suit, liability, damage, cost, or expense.

21. Harriman reserves the right to deny a request to translate files.

AUTHORIZED ACCEPTANCE

By Recipient	By Harriman (Architect/Engineer of Record)
_____	_____
Signature	Signature
_____	_____
Print Name and Title	Print Name and Title

Date	Date

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SECTION 013300 - SUBMITTAL PROCEDURES (2024)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Electronic Document Files: Copies of the Contract Drawings in electronic format will be made available by the Architect to those requesting same in accordance with the “Agreement Between Harriman (Architect & Engineer of Record) and Owner or Contractor for Release of Electronic Documents” form attached to the end of this section. Agreement form shall be filled out and signed by each party requesting electronic documents before electronic media is released to them.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each specification section concurrently.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
5. No products shall be incorporated into the work unless they have been approved by the Contractor and Architect. No work will be paid for until required submittals for applicable work have been submitted and approved.

C. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

D. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 14 calendar days minimum for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 14 calendar days minimum for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 calendar days minimum for initial review of each submittal.

E. Electronic Submittals: **Architect is using Newforma software to process electronic submittals**. Submittals must be sent for review individually (one submittal per email). Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into single files incorporating submittal requirements of a single specification section and transmittal form.
    a. Provide a separate transmittal form for Product Data, a separate transmittal form for Shop Drawings, and a separate transmittal form for Informational Submittals required by each Specification Section.
    b. Maximum File Size: A single file size, up to 18 MB can be received. Contact Architect for instructions if file exceeds 18 MB.
    c. For each transmittal, attach one single PDF only. Where multiple PDFs are required for a transmittal, utilize a combine feature to merge the PDFs into a single PDF.
        1) Unacceptable Formats: In order to process the transmittals in Newforma, the single PDF file protocol must be followed. Transmittals zip files or grouped PDFs cannot be electronically processed and will be returned without action for correction and resubmittal.
        2) Submittals will be returned without action for correction and resubmittal if:
            a) Submittal does not have an electronic Transmittal Form.

b) Multiple specification sections are contained within a single Transmittal form. Submittals must be separated into individual Specification Sections.
c) Submittal does not include the Contractors' signed reviewed stamp

2. Name file with submittal number or other unique identifier, including revision identifier.
   a. File name shall use project identifier and Specification Section number followed by a dash and then a sequential number (e.g., LNHS-061000-01). Resubmittals shall include an alphabetic suffix after another dash (e.g., LNHS-061000-01-A).
3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
   a. Project name.
   b. Date.
   c. Name and address of Architect.
   d. Name of Contractor.
   e. Name of firm or entity that prepared submittal.
   f. Names of subcontractor, manufacturer, and supplier.
   g. Submittal number or other unique identifier, including revision identifier.
      1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
   h. Specification Section number and title.
   i. Drawing number and detail references, as appropriate.
   j. Location(s) where product is to be installed, as appropriate.
   k. Related physical samples submitted directly.
   l. Indication of full or partial submittal.
   m. Other necessary identification.

F. Options: Identify options requiring selection by Architect.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked with appropriate notation from Architect's action stamp.

I. Architect will return all processed submittals through the Newforma file transfer procedure. Contractor will be responsible for incorporating the processed submittals into their file management systems as appropriate.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with appropriate notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
   1. Submit electronic submittals by either of the following methods:
      a. Via email as PDF electronic file to **constructadmin@harriman.com** .
         1) Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
      b. Post electronic submittals as PDF electronic files directly to Architect's FTP site specifically established for Project.
         1) Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
   2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
      a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.
   4. For equipment, include the following in addition to the above, as applicable:
      a. Wiring diagrams showing factory-installed wiring.
      b. Printed performance curves.
      c. Operational range diagrams.
      d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
   5. Submit Product Data before or concurrent with Samples.
   6. Submit Product Data in the following format:

a. PDF electronic file.

7. Do not submit Material Safety Data Sheets (MSDSs).

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
   a. Dimensions.
   b. Identification of products.
   c. Schedules.
   d. Compliance with specified standards.
   e. Notation of coordination requirements.
   f. Notation of dimensions established by field measurement.
   g. Relationship and attachment to adjoining construction clearly indicated.
   h. Seal and signature of professional engineer if specified.
2. Submit Shop Drawings in the following format:
   a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.
   e. Specification paragraph number and generic name of each item.
3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the

following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample sets; remainder will be returned.
   1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
   2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
   1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
   2. Manufacturer and product name, and model number if applicable.
   3. Number and name of room or space.
   4. Location within room or space.
   5. Submit product schedule in the following format:
      a. PDF electronic file.

F. Application for Payment and Schedule of Values: Comply with requirements specified in

G. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

H. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

I. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

J. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

M. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

N. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

O. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

P. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

Q. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

R. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

S. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

T. Material Safety Data Sheets (MSDSs): Submit information directly to Owner at end of the project; do not submit to Architect. Maintain copy at the site for the duration of the construction.
1. Architect will not review submittals that include MSDSs and will return them.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
   1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Contractor to mark submittal with their approval stamp before submitting to Architect.
   1. The Contractor shall review submittals for completeness and compliance with the Contract Documents. If submittal contains substitutions, Contractor shall process substitutions in accordance with Division 01 Section “Substitutions and Product Options,” and not part of specified Shop Drawings or Product Data submittals. Contractor is responsible for keeping Subcontractors on time with the submittal schedule. If the Contractor submits submittals that are repeatedly rejected, requiring the Architect to perform multiple reviews of the same submittal because of the failure to properly prepare and complete the submittals:
      a. Owner will compensate Architect for such additional services.
      b. Owner will deduct the amount of such compensation from the final payment to the Contractor.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's submittal stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an appropriate mark to indicate status.
   1. The Architect’s marking of “Reviewed, Furnish as Corrected or similar verbiage means submittal has been reviewed for general conformance to the contract documents only and does not mean unqualified acceptance. The Contractor is fully responsible for compliance with the contract documents.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

F. Submittals not required by the Contract Documents will be returned by the Architect without action.

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SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.
   1. For correction of installed work.
   2. For repairs due to testing.

B. Related Sections include the following:
   1. Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
   2. Division 07 Section "Through-Penetration Firestop Systems" for patching penetrations through fire-rated construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
   2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
   3. Products: List products to be used and firms or entities that will perform the Work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
   6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.

7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
   1. Primary operational systems and equipment.
   2. Air or smoke barriers.
   3. Fire-suppression systems.
   4. Mechanical systems piping and ducts.
   5. Control systems.
   6. Communication systems.
   7. Conveying systems.
   8. Electrical wiring systems.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
   1. Water, moisture, or vapor barriers.
   2. Membranes and flashings.
   3. Equipment supports.
   4. Piping, ductwork, vessels, and equipment.
   5. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or

adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concreteand Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
   a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
   b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Penetration firestopping systems for the following applications:
      a. Penetrations in fire-resistance-rated walls.
      b. Penetrations in horizontal assemblies.
      c. Penetrations in smoke barriers.

B. Related Requirements:
   1. Division 07 Section “Joint Sealants” for non-fire-resistive joint sealants.
   2. Division 22 and 23 Sections specifying duct and piping penetrations, including fire-suppression piping.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.
   1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Obtain approval of authorities having jurisdiction prior to submittal.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Approval according to FM Approval 4991, "Approval Standard for Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:
   1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
   2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:
      a. Penetration firestopping systems shall bear classification marking of a qualified testing agency.
         1) UL in its "Fire Resistance Directory."
         2) Intertek Group in its "Directory of Listed Building Products."
         3) FM Approval in its "Approval Guide."

2.2 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. A/D Fire Protection Systems Inc.
      b. Grace Construction Products.
      c. Hilti, Inc.
      d. Johns Manville.
      e. Nelson Firestop Products.
      f. NUCO Inc.
      g. Passive Fire Protection Partners.
      h. RectorSeal Corporation.
      i. Specified Technologies Inc.
      j. 3M Fire Protection Products.
      k. Tremco, Inc.; Tremco Fire Protection Systems Group.
      l. USG Corporation.

B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
   1. F-Rating: Not less than the fire-resistance rating of constructions penetrated.

C. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
   1. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
   2. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.

D. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined per UL 1479, based on testing at a positive pressure differential of 0.30-inch wg.
   1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at and no more than 50-cfm cumulative total for any 100 sq. ft. both ambient and elevated temperatures.

E. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E84.

F. Manufactured Piping Penetration Firestopping System: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.
   1. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
   2. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.

3. W-Rating: Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.

G. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.
1. Permanent forming/damming/backing materials.
2. Substrate primers.
3. Collars.
4. Steel sleeves.

2.3 FILL MATERIALS

A. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

B. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

C. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.

D. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.

E. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

F. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

G. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.

H. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

I. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.

2.4 MIXING

A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate

proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:
   1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
   2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
   3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.

B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.
   1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.

C. Install fill materials by proven techniques to produce the following results:
   1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.

2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
   1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.

B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
   1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
   2. Contractor's name, address, and phone number.
   3. Designation of applicable testing and inspecting agency.
   4. Date of installation.
   5. Manufacturer's name.
   6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Owner may engage a qualified testing agency to perform tests and inspections according to ASTM E2174.

B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.

C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

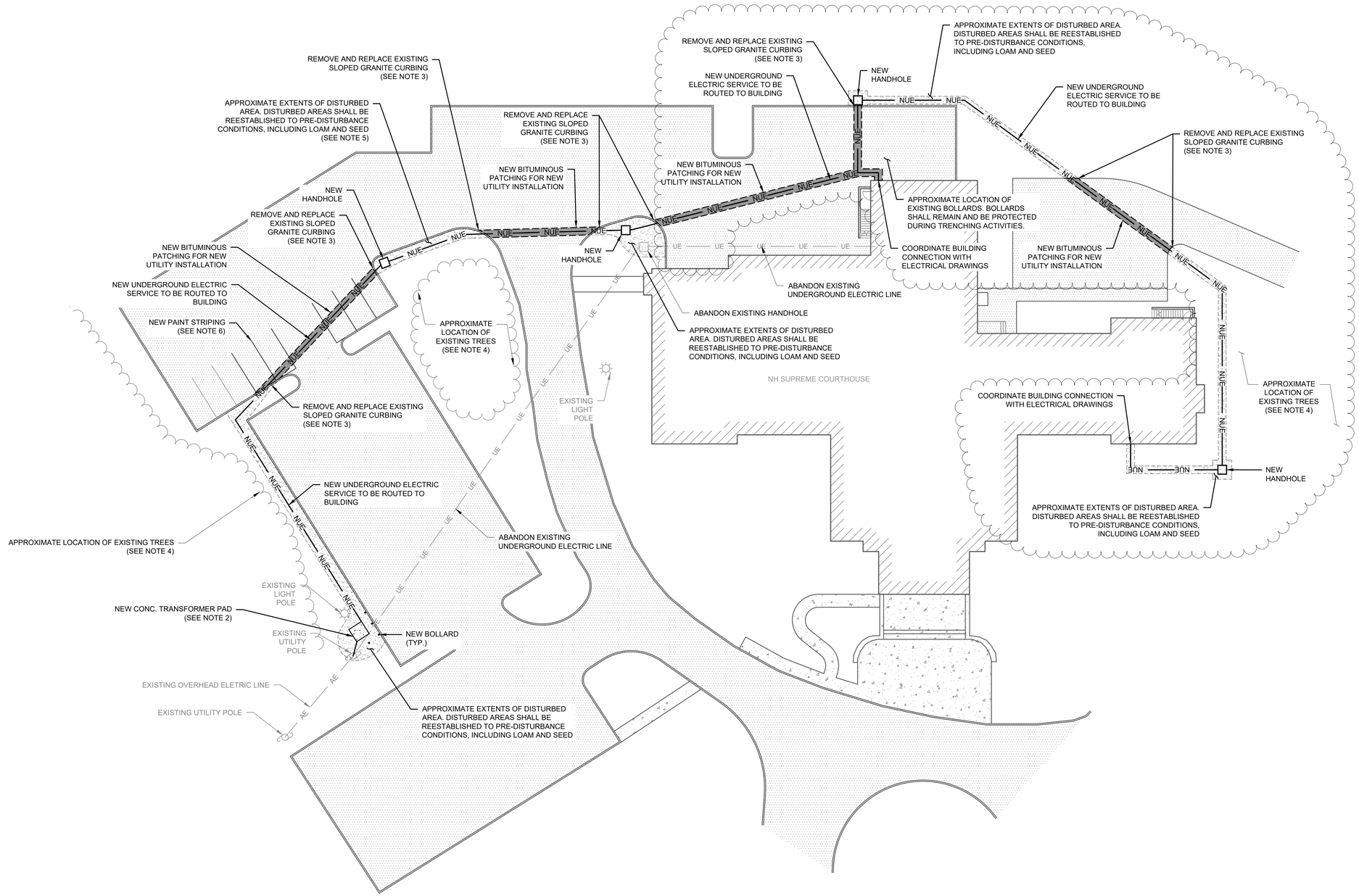
A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

GENERAL NOTES:

1. EXISTING CONDITIONS AND EXISTING UTILITY INFORMATION ARE APPROXIMATE. CONTRACTOR TO VERIFY IN FIELD.
2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASE OF TRANSFORMER.
3. CONTRACTOR SHALL SALVAGE EXISTING SLOPED GRANITE CURBING AS MUCH AS PRACTICAL. REPLACEMENT OF CURB SHALL ONLY OCCUR IF DAMAGED DURING THE EXCAVATION EFFORTS . INSTALLATION OF REPLACED OR SALVAGED CURBING SHALL MATCH PRE-DISTURBANCE CONDITIONS.
4. CONTRACTOR SHALL VERIFY IN FIELD THAT NEW UNDERGROUND ELECTRIC SERVICE DOES NOT IMPACT EXISTING TREES. IF EXISTING TREES CANNOT BE AVOIDED, THE NEW UNDERGROUND ELECTRIC SERVICE ROUTE SHALL BE ROUTED TO MINIMIZE TREE CLEARING TO GREATEST EXTENT POSSIBLE.
5. IRRIGATION SYSTEM SHALL BE REPAIRED AS NECESSARY IF DISTURBED OR DAMAGED.
6. ANY EXISTING PARKING SPACE WITHIN BITUMINOUS PATCHING AREA SHALL BE STRIPED WITH NEW PAINT.



Harriman

STATE OF NEW HAMPSHIRE, SUPREME COURT, ELECTRIC SERVICE UPGRADES

CONCORD, NEW HAMPSHIRE

Harriman Project No.	23133

Graphic Scale: 0" 1" SCALE: 1" = 20' (line measures 1" when plotted at full size)

Plan North | True North

CONSTRUCTION DOCUMENTS

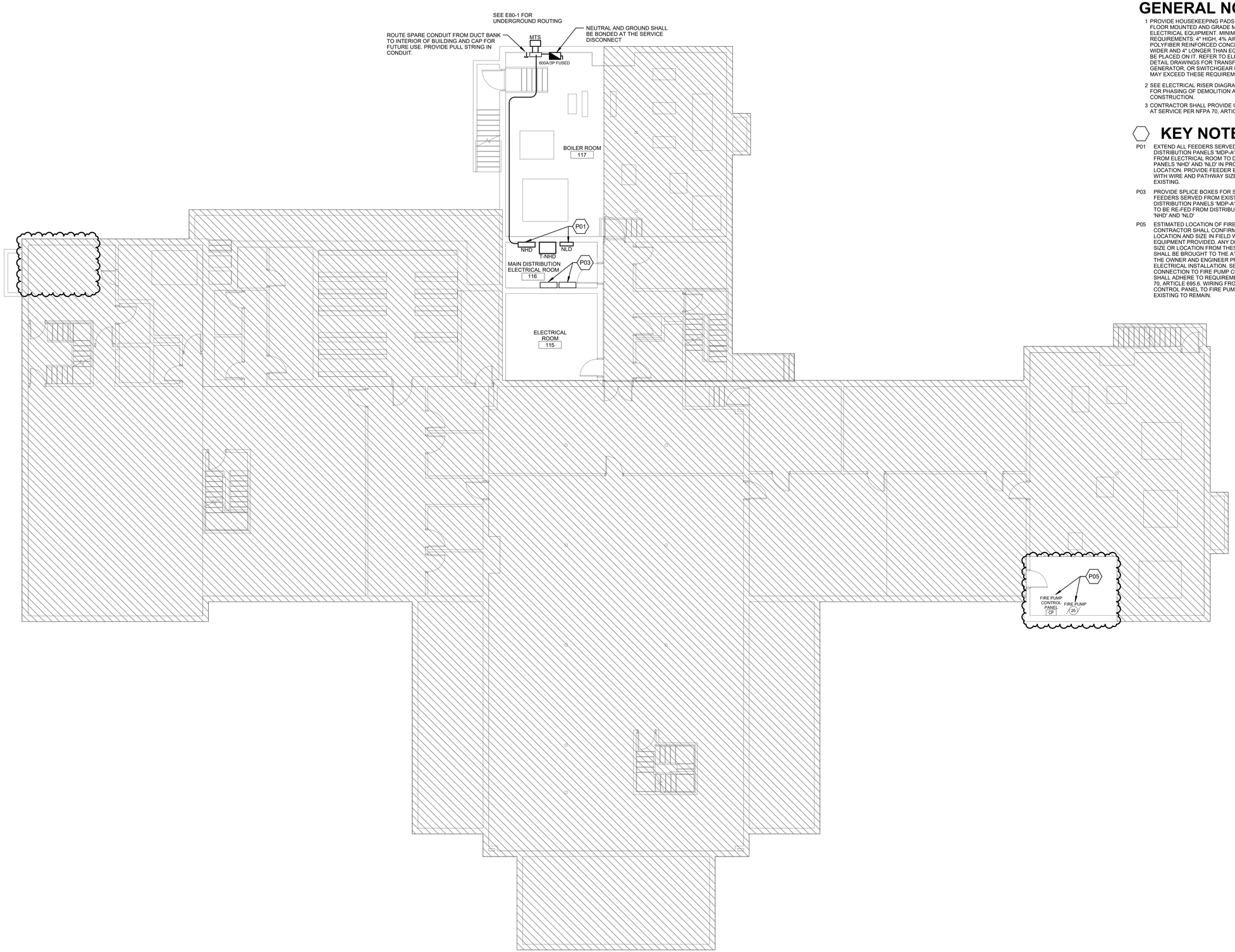
APRIL 11, 2024

Revision Date	Revision Description
04-26-2024	ADDENDUM 1

Drawn by: CEM

SITE LAYOUT PLAN

C20-1



A1 BASEMENT - POWER PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1 PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH, 4% AIR ENTRAINED, POLYFIBER REINFORCED CONCRETE, 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO ELECTRICAL DETAIL DRAWINGS FOR TRANSFORMER, GENERATOR, OR SWITCHGEAR PADS THAT MAY EXCEED THESE REQUIREMENTS.

2 SEE ELECTRICAL RISER DIAGRAMS ON E50-1 FOR PHASING OF DEMOLITION AND CONSTRUCTION.

3 CONTRACTOR SHALL PROVIDE GROUNDING AT SERVICE PER NFPA 70, ARTICLE 250.

KEY NOTES

P01 EXTEND ALL FEEDERS SERVED BY EXISTING DISTRIBUTION PANELS 'MDP-A' AND 'MDP-B' FROM ELECTRICAL ROOM TO DISTRIBUTION PANELS 'NHD' AND 'NLD' IN PROPOSED LOCATION. PROVIDE FEEDER EXTENSION WITH WIRE AND PATHWAY SIZES TO MATCH EXISTING.

P03 PROVIDE SPLICE BOXES FOR SPLICING OF FEEDERS SERVED FROM EXISTING DISTRIBUTION PANELS 'MDP-A' AND 'MDP-B' TO BE RE-FED FROM DISTRIBUTION PANELS 'NHD' AND 'NLD'

P05 ESTIMATED LOCATION OF FIRE PUMP. CONTRACTOR SHALL CONFIRM EXACT LOCATION AND SIZE IN FIELD WITH EQUIPMENT PROVIDED. ANY DEVIATIONS IN SIZE OR LOCATION FROM THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO ELECTRICAL INSTALLATION. SERVICE CONNECTION TO FIRE PUMP CONTROLLER SHALL ADHERE TO REQUIREMENTS IN NFPA 70, ARTICLE 695.6. WIRING FROM FIRE PUMP CONTROL PANEL TO FIRE PUMP SHALL BE EXISTING TO REMAIN.

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STATE OF NEW HAMPSHIRE JAMES E. RIEL No. 17015 LICENSED PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

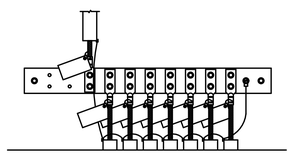
APRIL 11, 2024

Revision Date	Revision Description
04-26-2024	ADDENDUM 1

Drawn by: BDB

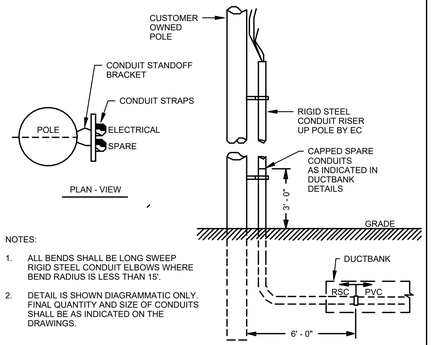
BASEMENT FLOOR PLAN POWER

E20-0



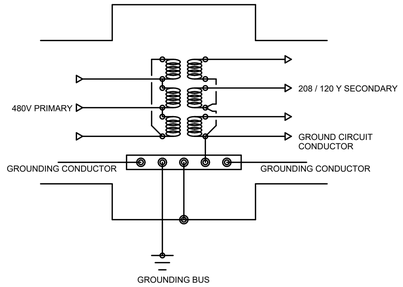
NOTES:
1. PROVIDE COPPER GROUNDING BUS (ERICO EGBA SERIES OR APPROVED EQUAL) WHERE INDICATED ON PLANS.
2. PROVIDE PERMANENT PHENOLIC TAG ON EACH CONDUCTOR INDICATING ORIGIN OF EACH CONDUCTOR.
3. GROUND TO ITEMS INDICATED ON POWER RISERS.
4. BOND TO THE FOLLOWING ITEMS:
   A. STRUCTURAL STEEL.
   B. TELIDATA GROUND BUSBAR.
   C. METALLIC PIPING.
   D. ALL OTHER GROUNDING ELECTRODES PRESENT AS LISTED IN NFPA 70 ARTICLE 250

A1 GROUNDING BUS DETAIL
NO SCALE

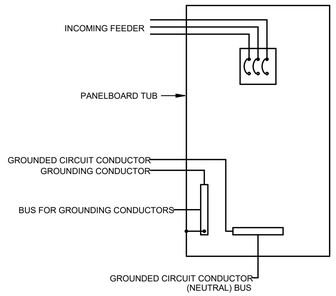


NOTES:
1. ALL BENDS SHALL BE LONG SWEEP RIGID STEEL CONDUIT ELBOWS WHERE BEND RADIUS IS LESS THAN 15'.
2. DETAIL IS SHOWN DIAGRAMMATIC ONLY. FINAL QUANTITY AND SIZE OF CONDUITS SHALL BE AS INDICATED ON THE DRAWINGS.

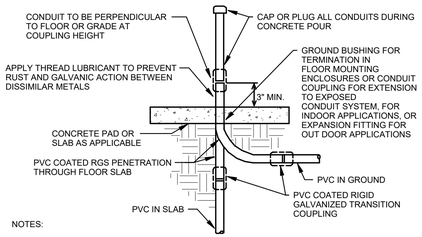
A2 RISER POLE DETAIL
NO SCALE



A3 TYPICAL DRY-TYPE TRANSFORMER GROUNDING DETAIL
NO SCALE

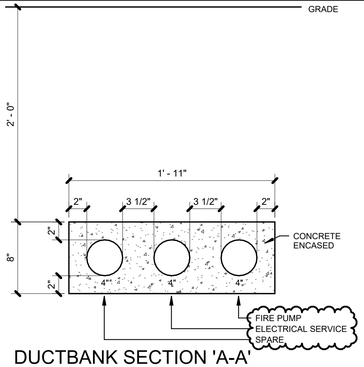


A4 TYPICAL PANELBOARD SERVED BY SECONDARY OF DRY-TYPE XFMR
NO SCALE

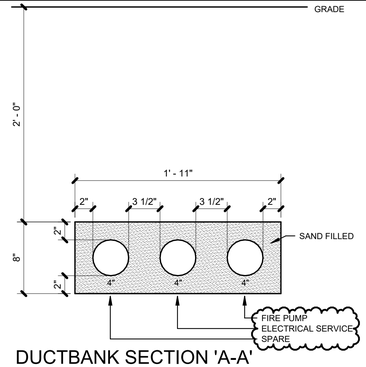


NOTES:
APPLICABLE FOR ALL UNDERGROUND AREAS UNLESS NOTED OTHERWISE.

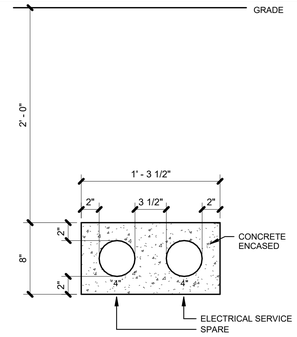
A5 TYPICAL UNDERGROUND CONDUIT STUB-UP DETAIL
NO SCALE



B2 DUCTBANK SECTION 'A-A' - PAVED AREAS
NO SCALE



B3 DUCTBANK SECTION 'A-A' - UNPAVED AREAS
NO SCALE



B4 DUCTBANK SECTION 'B-B'
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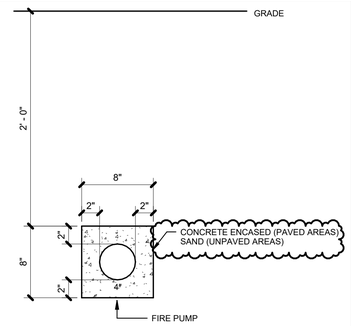

B5 DUCTBANK SECTION 'C-C'
NO SCALE

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JAMES E. RIEL
No. 17015
LICENSED
PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

APRIL 11, 2024

Revision Date	Revision Description
04-26-2024	ADDENDUM 1

Drawn by: JER

ELECTRICAL DETAILS

E70-1

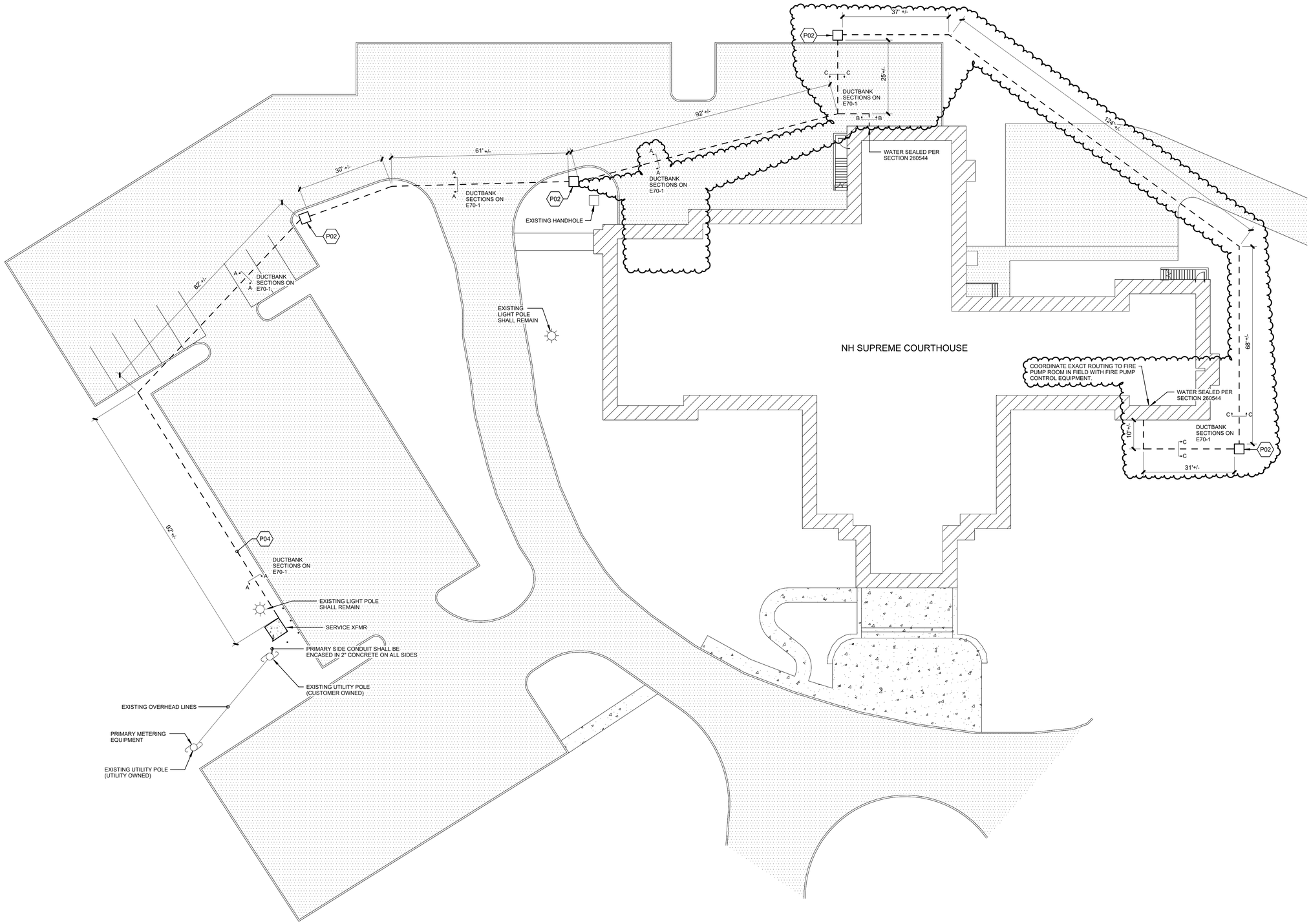
GENERAL NOTES

1. SITE PLAN IS SHOWN FOR GENERAL REFERENCE ONLY. EXISTING CONDUIT ROUTING IS ESTIMATED. ALL DIMENSIONS SHALL BE CONFIRMED BY ELECTRICAL CONTRACTOR IN THE FIELD.
2. ALL UNDERGROUND CONDUIT SHALL BE MINIMUM 24" BELOW GRADE.

KEY NOTES

P02 PROVIDE HANDHOLE FOR WIRE PULLING. COORDINATE EXACT LOCATION IN FIELD WITH EXISTING UNDERGROUND UTILITIES.

P04 SEE DETAILS ON E70-1 FOR DUCTBANK TYPES IN PAVED AND UNPAVED AREAS. ALL UNDERGROUND CONDUIT SHALL BE SCH-80 PVC.



A1 ELECTRICAL SITE PLAN

SCALE: 1/16" = 1'-0"

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Plan North

True North

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CONSTRUCTION DOCUMENTS

APRIL 11, 2024

Revision Date	Revision Description
04-26-2024	ADDENDUM 1

Drawn by: BDB

ELECTRICAL SITE PLAN

E80-1